Date: Aug. 22, 2014

To: Dr. M. Archambault, Undergraduate Curriculum Committee  
From: Dr. Kastro Hamed, Head, Dept. of Education & Interdisciplinary Studies  
Via: Dr. Hamid Rassoul, Dean, College of Science  
Re: Attached ANC and CGR form (7039, Sustainability Studies)

The following transmittal documents have received approval by the COS Dean's office and Office of Institutional Compliance.

- ANC: adding the course ISC 3250 as a required course for major code 7039, Sustainability Studies.
- Course Syllabus, ISC 3250, Systems, Governance, and Sustainability
- CGR: removing the course ISC 3200, Non-profit Corporate Operations, as a requirement for the major and adding one more allowed concentration course (there are already >80).

Thank you for your consideration.
This course is available for student registration only after the approval process has been completed.

SUBJECT:  C   COURSE NO.:  3250  CREDIT HOURS:  3  TERM TO BE ADDED TO THE CURRICULUM: Spring 2016
(Ex: CrS, 1200) (Ex: CF 1010)

CLASS HOURS: 45  LECTURE HOURS: 45  LAB HOURS: 0  CONTACT HOURS (CEU ONLY)

DEPARTMENT: Education & Information Studies  SCHEDULE TYPE: Lecture (L)

☐ COLLEGE OF AERONAUTICS - 23  ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25
☐ COLLEGE OF BUSINESS - 24  ☐ COLLEGE OF SCIENCE - 26
☐ COLLEGE OF ENGINEERING - 1  ☐ EXTENDED STUDIES/MAJOR RISK COLLEGE OF BUSINESS - 90

COMPUTER: Restricted  Use: none, labeling space: Systems Sustainability  Dual-Purpose  B-level  full-load

CATALOG TITLE: Systems, Governance and Sustainability

CATALOG DESCRIPTION OF COURSE: Restricted to bachelor's labeling space: Systems Sustainability

Examines system principles for sustainable governance from fields including complexity theory, cybernetics, social networks and risk communications. Covers such system attributes as feedback loops, response delays, trops, resilience, thresholds and system evolution. Also covers best practices for sustaining complex adaptive systems.

This description has been approved by the catalog office.

In addition, please attach a course syllabus and/or more detailed description.

Restrictions:  ☐ Pre-requisite: 1600  ☐ Corequisite:  1600

Additional Restrictions:  ☐ Other:

If this course replaces a course currently offered in DARMER, please indicate the course information and the date the course may be removed.

SUBJECT:  C   COURSE NO.:  3250  TERM TO BE OFFERED:

☐ Yes  ☒ No  Will this course be used to satisfy program-level student learning outcomes if yes review and signatures required.

APPROVED:  Signature of department head and dean of college.

Ken Lyleman  Aug 4, 2014  Chair

Kelee Rice  Aug 7, 2014  Chair, Graduate Council

Dr. Andrew Dunn  Aug 19, 2014  Chair, Undergraduate Curriculum Committee

Catalog Director:  Date

Registrar’s Use Only

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Catalog Director:  Date

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Florida Institute of Technology  Office of the Registrar

110 West University Boulevard, Melbourne, FL 32901-6975  (321) 674-8111  Fax (321) 674-7822

09/03/11
Course Description:
Fundamental principles of sustainable governance are examined and integrated for sustainable governance using tools from fields including complexity theory, cybernetics, social networks, resiliency, behavioral economics, risk communications, and political lobbying. The fundamental goal is to explore and test combinations of innovative and practical tools that can advance governance actions that make highly complex socio-economic and environmental systems more sustainable.

Operational features of system sustainability are emphasized including feedback loops, limit layers, response delays, orderly and chaotic perturbations, system traps, tipping points and post-transition system behaviors. Best practices in maintaining systems through non-equilibrium, processes including resilience and complex adaptive theory are examined. Means to identify, measure, adapt and communicate performance indicators of system sustainability are applied in business, non-profit, and government arenas.

Comparisons of policy arenas that apply systems thinking towards governance are compared to those that don’t in terms of natural, social, and economic capital and their co-evolutionary histories. Course requirements include development of a business plan that critically evaluates and employs primary systems and sustainability principles, a major homework assignment that compares and contrasts the difference between supply-side and demand-side sustainability using systems examples, and a presentation that reflects abilities to orally and visually communicate complicated sustainability concepts. Recent trends are examined in terms of potential future dynamics mediated by multiple sources and innovations. Socio-economic and environmental systems are examined within and among the U.S., Europe, South America, the Middle East, Africa and Asia.

Class Information and Instructor
Credit hours: 3
Pre-Requisites: ISC 1500, Introduction to Sustainability
Days/Time: TBD for spring semester 2015
Canvas will be the course web portal for registered students.
Instructor: Dr. K. Lindeman, Professor, Dept. of Education & Interdisciplinary Studies
Office and Hours: Rm 103 Shepard Bldg., TBD for spring semester 2015

Information Materials
Textbooks:

Reading will also be used from materials including:

The course will also include journal research articles; government, industry, and NGO reports; and some current articles from web and print media. These readings and assigned chapters from the books will be posted on Canvas.

**Student Learning Outcomes** include
- Familiarity with the history and principles of system dynamics and associated fields as applied in sustainability and governance.
- Understanding of challenges and opportunities for applications of system sciences and cybernetics in real-world governance.
- Recognition of the inherent non-linear and chaotic properties of complex adaptive systems and tools for resilience.
- Ability to interpret the roles of cultural conditioning and other socio-economic drivers in complex systems decision-making.
- Knowledge of basic economic and political drivers of governance, and factors limiting the application of sustainability sciences.
- Experience with the measurement of governance effectiveness utilizing indicators and other tools.
- Improved critical reading and writing skills for complex, interdisciplinary system management.
- Improved skills for the analysis of complex systems and paths towards more efficient governance.
- Experience with building and giving presentations on systems-based sustainability challenges and solutions in governance systems.

**Grading:**
25% Homework and Quizzes
15% Business Plan
20% Midterm
20% Presentation and Project
20% Final exam

Fundamental writing skills are of considerable value in this course and in many jobs. Students should sharpen your writing skills with this or other useful tutorials: [http://www.bristol.ac.uk/arts/exercises/grammar/grammar_tutorial/index.htm](http://www.bristol.ac.uk/arts/exercises/grammar/grammar_tutorial/index.htm)

Also, highly recommended for developing your writing - this is a lifetime pursuit! - is the little classic by Strunk and White titled *The Elements of Style.* Very inexpensive on Amazon.
The addition or removal of any graduation requirement in a major or minor requires that this form, accompanied by supporting documentation, be completed and approved as indicated below. Incomplete or incorrect forms will not be processed.

COLLEGE: College of Science

DEGREE LEVEL: B.S.

DEPARTMENT: Education & Interdisciplinary Studies

PROGRAM TITLE: Sustainability Studies

TO BE INITIATED WITH CATALOG YEAR 20____ 1/20____

CHANGE REQUESTED FOR ☑ major program ☐ minor program 7 0 3 9

Date change to be initiated must be for a future academic year.

DESCRIPTION OF REQUESTED CHANGES: Attach a more detailed description and any supporting documentation.

- Remove ISC 3200 as a requirement for major code 7039.
- Replace the above course with ISC 3250 as a requirement for major code 7039.
- In the official list of concentration courses for the major, add the course BUS 3501 Management Principles under the Business concentration category.

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Approvals: On completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee, for approval below and forward to the Office of the Registrar.

K. Landers
Aug 19, 2014
Chair, Graduate Council

K. Haines
8/19/14
Chair, Undergraduate Curriculum Committee

R. Drake
8/23/14
Dean or Associate Dean

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University Catalog
☑ Yes ☐ No
Update completed Date Initials

CAPP / Degree Evaluation
☑ Yes ☐ No
Update completed Date Initials

Catalog / Policy Mgmt. System
☑ Yes ☐ No
Update completed Date Initials

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